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SHOCK ABSORBER FOR AN AUTOMATIC FIREARM

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Fig. 2

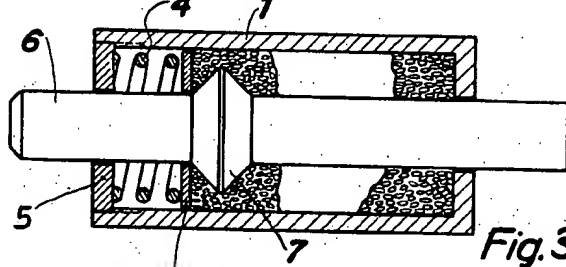
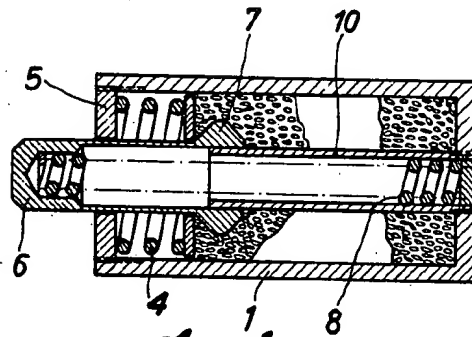


Fig. 3

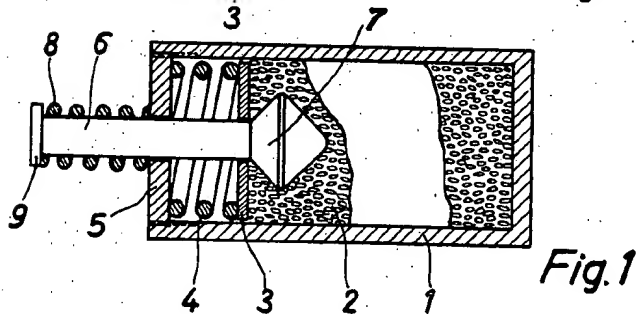


Fig. 1

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1

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## SHOCK ABSORBER FOR AN AUTOMATIC FIREARM

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1 Claim. (Cl. 89—198)

### ABSTRACT OF THE DISCLOSURE

A shock absorber for an automatic firearm having a cylinder containing a plurality of pellets and a push rod with a displacement piston in the pellets operative under spring action against an end wall of the cylinder and a cover plate in contact with the pellets.

The invention relates to shock absorbers for automatic firearms comprising a displacement piston arranged on a buffer pin or a push rod and with a passage surrounding it, the piston being slidable in a cylinder filled with a displacement medium in the form of pellets, as described in U.S. Patent No. 3,251,270 of May 17, 1966.

In many cases, particularly when the shock absorber is employed as a breech block buffer, it is desirable that there be a substantially smaller damping resistance to the return stroke of the displacement piston (on counter-recoil of the breech block) than in the opposite direction of movement of the piston.

According to the present invention, this is achieved by means of a cover plate guided slidably in the cylinder and forming a confining surface for the displacement medium, the said cover plate being supported against the adjacent end wall of the cylinder by way of a spring. In this case, the return of the displacement piston can take place in a substantially shorter time than is the case of the construction described in said patent referred to above, since the cover plate forming the forward confining surface for the displacement medium is supported resiliently in the direction of movement of the piston, i.e. in the direction of the front end wall of the cylinder. Because of this, moreover, the advantage is obtained that in those constructions in which a return spring is provided for restoring the piston to its initial position only a comparatively weak return spring is now required, this having an advantageous effect in regard to the efforts made to achieve small dimensions for the damping device.

In a preferred embodiment of the invention, the return spring is arranged between the front end wall of the cylinder and the front end of the buffer pin and the latter is moreover guided in the end wall of the cylinder and in the cover plate.

As a further advantageous development of the invention, in a shock absorber having a hollow buffer pin for receiving a return spring, the displacement piston may be arranged at the inner end of the buffer pin and be guided with the latter on a guide tube fixed to the opposite wall of the cylinder and receiving the return spring. In this way, particularly favourable structural dimensions for the damping device and an extremely stable guiding action for the displacement piston are obtained.

Three embodiments of the invention will now be described in greater detail with reference to the accompanying drawings in which FIGS. 1, 2 and 3 are each a longitudinal section of three embodiments.

The cylinder 1 of a breech block buffer contains a

2

displacement medium 2 consisting of solid, pellet-shaped bodies, for example steel pellets with a diameter of about 1 mm. The cylinder 1 is only partly filled with the displacement medium, a cover plate 3 forming a forward confining surface for the displacement medium. The cover plate 3 is supported by a spring 4 acting against the front end wall 5 of the cylinder. The end wall 5 is secured to the cylinder in a suitable manner; it is advantageously screwed in so that the initial tension of the spring 4 and thus the characteristic of the buffer device can be varied. A displacement piston 7 arranged on a push rod 6 is guided slidably in that part of the cylinder space which is filled with the displacement medium. The displacement piston has a smaller outer diameter than the internal diameter of the cylinder, so that there is an annular passage for the displacement medium.

In the embodiment shown in FIG. 1, a return spring 8 is arranged between the front end wall 5 and a collar 9 provided at the front end of the push rod 6. In the embodiment shown in FIG. 2, the return spring 8 is arranged inside the hollow push rod and a guide tube 10 serving to guide the displacement piston and fixed to the opposite wall of the cylinder. This design permits particularly small dimensions and damping movements which are large in relation thereto.

While FIGS. 1 and 2 show embodiments of the invention in which a return spring 8 is provided for returning the push rod, FIG. 3 shows a construction without a return spring. In this case, the push rod 6 extends through both end walls of the cylinder and is guided in them. A construction of this kind will be chosen in the case of damping devices with a forced movement of the push rod, i.e. in those constructions in which the push rod is coupled to a moving mass.

What is claimed is:

1. A shock absorber for an automatic firearm comprising in combination a cylinder containing a displacement medium in the form of pellets, an end wall on said cylinder, a push rod extending into the cylinder, a displacement piston arranged on the push rod, said displacement piston being slidable with clearance inside said cylinder, a cover plate slidable within said cylinder, said cover plate forming a confining surface for said displacement medium, resilient means supporting said cover plate against the displacement medium and provided adjacent said end wall of said cylinder and a resilient return means for restoring said displacement piston to a forward end position in said cylinder, said resilient return means being arranged between said end wall of said cylinder and the front end of said push rod, and said push rod being guided in said end wall and in said cover plate.

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U.S. Cl. X.R.

188—101